

What is Claimed is:

1. A display device, comprising:

an organic LED element including a plurality of pixels;

5 a switching thin film transistor electrically connected to at least one of said plurality of pixels; and

a driver thin film transistor electrically connected to said at least one of said plurality of pixels.

- 10 2. The display device according to claim 1, wherein said driver thin film transistor further comprises:

a first insulating film having a first and a second surface;

an active layer positioned on a portion of said first surface of said first insulating film;

15 a second insulating film positioned on said active layer and on said first surface of said first insulating film;

a first gate electrode having a first area positioned on said second surface of said first insulating film;

20 a second gate electrode positioned on said second insulating film, said second gate electrode having a second area less than or greater than said first area of said first gate electrode;

a first conductor connected to said first gate electrode for selectively applying a first voltage to said first gate electrode and operate said transistor in conjunction with or independent of said second gate electrode; and

a second conductor connected to said second gate electrode for applying a second voltage to said second gate electrode and operate said transistor in conjunction with or independent of said first gate electrode.

3. The display device according to claim 2, further including two conductive layers positioned on said active layer, each of said conductive layers including a side wall and a bottom wall connecting said sidewalls therein defining a channel, said bottom wall defined by said active layer.

4. The display device according to claim 3, wherein said bottom wall of said channel has a rectangular shape with a predetermined length and width.

5. The display device according to claim 4, wherein said first and second gate electrodes each have a rectangular shape with a predetermined length and width.

6. The display device according to claim 5, wherein said predetermined width of each of said first and second gate electrodes is greater than said predetermined width of said bottom wall of said channel.

7. The display device according to claim 6, wherein said predetermined length of at least one of said first and second gate electrodes is greater than said predetermined length of said bottom wall of said channel.

5 8. The display device according to claim 2, wherein said first conductor comprises a first controller.

9. The display device according to claim 2, wherein said second conductor comprises a second controller.

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10. A method of driving a display device comprising the steps of:
providing an organic LED element including a plurality of pixels;
providing a driver thin film transistor including a first gate electrode and a second gate electrode positioned therein, a first conductor connected to said first gate electrode for applying a first voltage to said first gate electrode, a second conductor connected to said second gate electrode for applying a second voltage to said second gate electrode;
electrically connecting said driver thin film transistor to one of said plurality of pixels;
controlling said first voltage and said second voltage to said first and second conductors, respectively; and

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supplying a level of driving current from said driver thin film transistor to said organic LED element.

11. The method of driving a display device according to claim 10, further comprising
5 the step of controlling said level of driving current to one of four levels to perform gray level control of said organic LED element.

12. The method of driving a display device according to claim 10, wherein said step
10 of controlling said first voltage and said second voltage to said first and second conductors, respectively, is performed by independently controlling said first voltage and said second voltage as either on or off.

13. The method according to claim 10, further including two conductive layers
15 positioned on said active layer, each of said conductive layers including a side wall and a bottom wall connecting said sidewalls therein defining a channel, said bottom wall defined by said active layer.

14. The method according to claim 13, wherein said bottom wall of said channel
20 has a rectangular shape with a predetermined length and width.

15. The method according to claim 14, wherein said first and second gate
electrodes each have a rectangular shape with a predetermined length and width.

16. The method according to claim 15, wherein said predetermined width of each of said first and second gate electrodes is greater than said predetermined width of said bottom wall of said channel.
- 5 17. The display device according to claim 16, wherein said predetermined length of at least one of said first and second gate electrodes is greater than said predetermined length of said bottom wall of said channel.